GARDEN AND FOREST.

PUBLISHED WEEKLY BY

THE GARDEN AND FOREST PUBLISHING CO.

OFFICE: TRIBUNE BUILDING, NEW YORK.

Conducted by . . . . . Professor C. S. SARGENT.

ENTERED AS SECOND-CLASS MATTER AT THE POST OFFICE AT NEW YORK, N. Y.

NEW YORK, WEDNESDAY, AUGUST 8, 1888.

TABLE OF CONTENTS.

PAGE.

EDITORIAL ARTICLES:—Irrigation Problems in the Arid West.—The Forests of Maine.—Wild Flowers in City Markets 277
The Exhibition of Wild Flowers (with illustration) . . . *C. L. Anderson, M.D.* 278
The Flora of the Florida Keys . . . . . *A. H. Curtiss.* 279
FOREIGN CORRESPONDENCE:—London Letter . . . . . *W. Goldring.* 280
NEW OR LITTLE KNOWN PLANTS:—Cypripedium Californicum (with illustration), *Sereno Watson.* 281
PLANT NOTES:—Two Rare Orchids . . . . . *Emily Louise Taplin.* 281
CULTURAL DEPARTMENT:—Strawberries . . . . . *Wm. Falconer.* 282
The Currant and its Cultivation . . . . . *E. Williams.* 282
The Vegetable Garden . . . . . *G. C.* 283
Some Floral Novelties—Orchids in Bloom 283
The Olive Tree (with illustration) 284
Notes from the Arnold Arboretum . . . . . *J.* 285
THE FOREST:—The White Pine in Great Britain 286
CORRESPONDENCE 286
PERIODICAL LITERATURE 287
NOTES 287
ILLUSTRATIONS:—Wild Flowers for Exhibition 279
Cypripedium Californicum, Fig. 45 281
Olive Tree in the Garden of Gethsemane 284

Irrigation Problems in the Arid West.

IN a recent issue we considered the potentialities of the arid regions of the far west under irrigation. How best to develop these, how best to make fertile and populous this vast extent of country, is a question of national importance. It deserves the attention of both national and state or territorial governments. Much has already been done by individual and corporate effort in the making fertile of large tracts. Large as is the amount of land that has been thus brought under cultivation, it is but a sample of what may be done with comprehensive, systematic undertakings. There must eventually be carried out works of such magnitude that private means can hardly be looked for to take them in hand until their assured practicability has been demonstrated and the attention of great capitalistic enterprises is turned towards the field, as it has towards the construction of railways on a continental scale. The utilization of the waters of important streams that come under the jurisdictions of more than one state or territory involves considerations of equity, and often the harmonizing of conflicting interests, in a way to call for the participation of the national government, as well as does the fact that the greater portion of the land to be improved belongs to the national domain. The splendid work accomplished in India by the British government in the construction of thousands of miles of great irrigating-canals, with the result of making India a strong, and possibly dangerous, rival of the United States in the wheat-markets of the world, gives an idea of the field open to our government. Not until the precipitation from the mountains of the arid region is spread over every possible acre of the plains, can the subject be regarded as settled. It has been urged that the national government appropriate large sums for the construction of irrigating works on an extensive scale in connection with the principal streams; but this policy seems undesirable, for under our present system it would almost surely lead to wasteful expenditure, if not ill-devised schemes. The best means seems to be some method of encouragement to private capital. This might be done either by special acts adapted to particular cases, or by a general law applying to all irrigation projects beyond a certain magnitude. This method has been certainly most beneficent in its application to railways, for without the encouragement thus given, chiefly in the shape of land-grants, the railways would not have been built and the country would have remained undeveloped and unsettled; the national lands consequently worthless. The railways now need no such encouragement and they build readily through that portion of the country without it; therefore it would be gratuitous to give them a bounty for doing what they are eager to do, and the land-grant policy has very properly been abandoned. It would probably, however, be a good policy for the government to encourage, for the present, the construction of extensive irrigating works, by granting to the parties undertaking them alternate sections of the land thus improved. Otherwise it might be many years before such needed works were undertaken. Government land now absolutely worthless would thus be made very valuable, with rich and prosperous populations created in the wilderness. To guard against possible abuse, it might be provided that the improved land thus obtained by the companies should be sold to settlers at certain fixed and reasonable prices. In this way, for instance, the enormous flow of the Colorado River—the diversion of which for irrigation involves peculiarly difficult and costly engineering—might be utilized, and millions of acres in the Mohave and Yuma deserts and on the Sonora mesa, in California and Arizona, made fertile.

The state and territorial governments have a concern in the matter no less than that of the federal government, their function being administrative, as well as incentive like the latter. It is of such immense importance that the irrigating works should be constructed and operated to the best possible advantage of the public, that, in the states and territories of the arid regions, boards of irrigation-commissioners are more essential than even the railway commissions that have almost universally become the rule. The whole subject of irrigation should be entrusted to these commissions, whose office should be advisory as well as regulative. Colorado ranks probably foremost in having adopted an enlightened system of this kind, and is reaping the benefits in the shape of a remarkable growth of her agricultural interests, which are placing the state on a more secure foundation of prosperity than mining, which has been her chief industry, could ever do. The state is divided into twenty-six water-districts, with a water-commissioner at the head of each, in charge of all matters concerning irrigation. The state engineer has supervision of matters relating to his department. The laws of the state provide methods for regulating outflow and distribution, for organizing enterprises either on a joint stock or co-operative basis, the supervision of water-rates, and the adjudication of disputes.

California also has a well-devised irrigation code. The irrigation laws of Arizona are modeled on those prevailing in California before revision, with some modifications, and need improvement. The irrigation laws of New Mexico are substantially the same as when the territory was a Mexican province. For the development of its great resources a thorough remodeling is needed.

In each state and territory there should be, under the supervision of the irrigation commissioners, a thorough topographical survey of the water-supply, actual and potential, indicating the best lines for canals, the amount of flow in the various streams and the amount that would go to waste without storage, the spots in the valleys and among the mountains where the water of either permanent streams or of torrents may be husbanded by impounding, and where water may be obtained either by artesian or ordinary wells. The knowledge thus given would be of enormous value in promoting the development of irrigation, for settlers could proceed with confidence to utilize the resources pointed out, saving them much uncertainty and possible loss. Therefore such a survey, however costly, would pay for itself manifold.

The study of irrigation methods should be a leading and particular feature of those agricultural experiment-stations established by the aid of the national government in the arid states and territories. For the most part the prevailing systems are characterized by great extravagance in the use of water, so that with proper economy the present supplies could be made to irrigate a much greater area; in some instances probably even twice as much. The best means for the prevention of waste can be studied and pointed out at these stations, and, when ascertained, their adoption should, in the interest of the public, be made compulsory. The products most suitable to irrigation can also be determined at these stations. Irrigation is particularly adapted to horticultural operations. Fruit trees, for instance, require a very much less quantity of water than either grain or grass crops, and while yielding a greater return of profit to the acre, a much greater area may be cultivated from a given supply of water. It is probable that some method of sub-irrigation can be effectively adapted to fruit-culture, since the economy of water would repay the increased cost, while the large returns from fruit-culture in those regions would warrant the considerable expense of preparing the land. Sub-irrigation would almost entirely prevent the loss by evaporation, which is enormous in those regions, and, moreover, it would probably offer a remedy for the malarious conditions so apt to accompany irrigation, for the water would be absorbed beneath the surface, instead of generating malarial germs or gases through the decay of vegetable matter in surface-evaporation under a hot sun. The best means for preventing evaporation in the storage-basins and in the flow of distributing canals, should also be studied thoroughly at these experiment-stations.

With the entire subject considered, and the results carried into practice in the way we have indicated, we shall see an agricultural development in the arid portions of our country that will give them rank in fertility, wealth and high civilization with the famous old cultures once developed under similar conditions in the valleys of the Euphrates and the Nile.

Occasionally some uninstructed person speaks of inexhaustible forests, but by this time it should be pretty generally understood that a forest can be made to yield indefinitely only by restricting its average annual production to its annual increase. The forest products of Maine, for example, diminished alarmingly after the White Pine and Spruce in that State had been recklessly destroyed for many years, and the entire extinction of its most important industry was threatened. But the people of Maine have learned a dearly bought lesson, and realize now that forests can be destroyed, even though they may have appeared inexhaustible, during the lives of one or two generations of men. The Maine forests are not managed in accordance with the rules of scientific forestry as these are understood in European countries, and beyond question the practice could be improved upon. Nevertheless, this practice is based upon the laws of nature and the necessities which arise from existing conditions, and it is upon these that any system of forest management, however elaborately its details may be worked out, must rest primarily. The Maine lumberman has learned that excessive and unrestrained cutting, supplemented by fire, will destroy any forest, and that a forest from which only the ripe trees are cut at stated periods, while the remainder are carefully protected and allowed in their turn to reach maturity, will continue to produce indefinitely, and to pay handsomer returns in the long run than it would under the usual American custom of indiscriminate cutting without regard to future production. The changes which have been gradually taking place for a number of years in the management of the Maine forests have already borne fruit in their improved condition and increased output. They restore to the Pine Tree State its position as one of the most important of the lumber producing states, not in the actual product of the mills to-day, but in the promise offered by more intelligent forest management of a steady and constant supply of logs in the future. If the present ruinous practice continues to prevail in Michigan, in Wisconsin and Minnesota, it will not be many years before the annual timber crop of those three great states will fall below that of Maine, and perhaps of some of the other New England States. It is not easy to overstate the importance of the system of forest management which is now being worked out in the Maine woods, and which is all the more likely to succeed because it is based upon experience. Its eventual success means prosperity for the State; its failure practical ruin for a large part of it. Other States can learn much from Maine; and especially that by the patient application of a few sensible rules—rules which nature herself teaches—and by the use of a little forethought and a little common sense, a forest can be made more surely and permanently productive than property of any other description.

As we said some weeks ago, there is a growing love among the people of our cities for cut flowers of every description and every grade of costliness. For every variety of flower sold in the shops ten years ago, a dozen varieties may now be counted, and for every street vender who could then be seen, a whole troop may be seen to-day. At first it seemed as though the street vender merely sold at a lower price the stale or refuse stock of the florist—little button-hole bouquets or half-withered bunches of Roses. But he has enlarged his field of enterprise with the growth of patronage, and numberless hands must now be at work for him in suburban gardens and meadows. The Lilacs shown on the street this year were remarkable for quality as well as for quantity, and an especially welcome fact has been the advent of wild flowers in unprecedented quantities. The first to appear were "Pussy Willows," and then Marsh-Marigolds, which abounded at every step and were sold in large bunches for five cents. Since then we have had Buttercups, Field Daisies and Laurel in quantities, and, a greater novelty, the False Spikenard (*Smilacina racemosa*). Pitcher Plants and Magnolias have been offered, and every wild flower which may easily be procured will follow in due season until big bunches of Black Alder berries take the place of flowers. In addition to wild flowers, common garden flowers—Pinks, Pæonies, Roses, Sweet Peas, Corn Flowers and a host besides—began to appear in profusion as soon as the Lilacs were past, so that the New Yorker, even of slenderest purse, has been able to enjoy, almost as well as his country brother, nature's pleasant tokens of the passage of the months.

The Exhibition of Wild Flowers.

I HAVE frequently exhibited a small collection of wild flowers at fairs. They always excited an unexpected interest, however rude the collection may have been. At first I used herbarium specimens, placed in bundles according to their orders or genera, with cards attached containing the botanical as well as common names. But in this way they required constant watching to prevent displacement and destruction by careless visitors.

Recently, however, I have resorted to the woods and other places for wild flowers, and have exhibited them, generally with much satisfaction, in their fresh state.

My conclusion is that the following method is not only neat, showy and simple, but calculated to stimulate a desire in many persons to study the names and botanical arrangement of our native flora:

Take an ordinary table two or three feet wide, and as long as you please—say six to twenty feet. Tack a green or red colored muslin strip around the table to form a curtain, reaching to the floor. Cover the top with white paper. Then at a crockery store you can usually borrow

as many goblets as you need. Fill these nearly full of clean sand and enough water to fill the interstices nearly to the upper surface of the sand. Then put in your best selected plants, as shown in the illustration. The labels are written on cards about 1½ x 2½ inches, inserted in a split at the top of the holder, which is about eleven inches long and less than one-quarter of an inch square. These holders can be made of any wood that will split straight. Our redwood answers well.

Thus we have one species in each goblet with a number of specimens convenient for examination. (See illustration.) Do not crowd the plants, and keep the goblets clear of each other. Many a fine display is spoiled by trying to show too many things in a small space. Some taste is necessary in arranging the goblets on the table as to height, color, etc.

Here in California we at all seasons have enough wild plants in flower for a nice show.

In the wet sand in these goblets the flowers will keep several days —some for two weeks —such as the Calochortus, Œnothera, Godetia, Chlorogalum, Trifolium, Aquilegia, etc. Some of the grasses are beautiful, and placed in goblets as above, will throw out their flowers in little tassels, which remain for several days unchanged.

These wild flowers in a flower-show contrast beautifully with the cultivated ones, and furnish an excellent illustration of the difference between the wild and the cultivated.

C. L. Anderson.

Santa Cruz, Cal., July, 1888.

Wild Flowers for Exhibition.

[Collections of wild flowers have been an interesting feature for a number of years at the exhibitions of the Massachusetts Horticultural Society. The flowers are generally crowded together in bunches and placed in narrow vases of water. They soon wilt when treated in this way; and the collections lose much of the beauty and attractiveness they would possess if more taste could be displayed in their arrangement and in grouping the different varieties. Dr. Anderson's suggestion is one which might be tried with advantage at Eastern flower shows.—ED.]

The Flora of the Florida Keys.

A BOTANICAL survey of that unique portion of our country known as the Florida Keys confirms an opinion that would naturally be formed after studying a map—namely, that the flora of these islands is nearly, if not quite, identical with that of the coast region of the neighboring Antilles. Among the very few species which botanists do not know to grow elsewhere—though it is probable that they may be found in more southern regions—is the newly discovered *Pseudophœnix Sargentii*. This interesting Palm is confined to two of the keys, namely, Elliott's and Long, which are over fifty miles distant from each other. On account of the small number of these trees and the precarious conditions under which they grow, they might have disappeared wholly from the world but for their timely discovery by Professor Sargent and the enterprise of Messrs. Reasoner Brothers, of Manatee, in obtaining plants and seeds for cultivation.

The renewed interest which this discovery has awakened in a region which has long been famous among naturalists and lovers of nautical adventure, seems to warrant a brief account of some botanical observations on these islands made by me during several cruises since the year 1880. A botanical survey of the Reef Keys reveals several marked characteristics, of which the three following are most important:

1st. The number of species is small as compared with similar areas elsewhere, the total number being about 230, which is scarcely one-fourth of the number that is usually to be found in a region of similar extent.

2d. The proportion of woody plants (trees and shrubs) is large, being one-third of the whole number, while in the State of Florida as a whole the proportion of woody to herbaceous species is as one to seven.

3d. The species, as a rule, belong to tropical or sub-tropical orders, or to orders which are most largely represented in more southern latitudes. Thus we find five species of the Myrtle family, which is not represented in other States, and there are fourteen shrubs and trees of the Cinchona family, while but one is found in other States. On the other hand, there are no representatives whatever of those large and important orders, *Ranunculaceæ*, *Caryophyllaceæ*, *Saxifragaceæ*, *Onagraceæ*, *Umbelliferæ*, *Polemoniaceæ* and *Liliaceæ*, and but one each of the *Cruciferæ*, *Rosaceæ* and *Amentaceæ*, each of which orders has from 140 to 270 representatives in the United States.

These peculiarities are easily accounted for. In the first place, these keys present no material differences of altitude and latitude, and very little as regards soil, and differences in those three respects are the leading factors in determining the richness or poverty of the flora of any section. On these islands there are no hills or mountains, no brooks or rivers, no valleys or fresh water swamps, no clay, loam or siliceous sand. The soil consists throughout of coralline and sedementary lime-rock, calcareous sand and a little mould resulting from the decay of vegetation. The rocky soil is permeated by veins of brackish water, and neither salt nor lime is favorable to great diversity of vegetation.

There is lack of silica for grasses and sedges, and the conditions do not favor that luxuriant growth of Ferns and Orchids which might be expected in this latitude. On the mainland, around the Everglades, there are forests more tropical in appearance than any on the keys. As regards natural vegetation, the keys improve all the way from Key West to the upper end of Key Largo, and there is a corresponding improvement in their adaptation to farming or gardening purposes.

As the best lands for cultivation are those that support the best forests, the latter have been destroyed, in great measure, by the clearing of land, the favorite Pineapple crop being one that is continually calling for new land. Fine old forests of Mastic, Mahogany, Crab-wood and scores of other interesting trees have been cut and burned to make room for plantations, and of some of the rare trees it is doubtful if any specimens are now to be found on the keys.

The botanical characteristics of all the Florida Keys, with the exception of one group, are essentially the same, the variety of species and difference in development being governed by varying elevation and fertility. The inner shores of the keys, and portions of their outer shores, are covered with almost impenetrable thickets of Red Mangrove (*Rhizophora*), among which are interspersed the Black Mangrove (*Avicennia*) and the Red and White Buttonwoods (*Conocarpus* and *Laguncularia*). Inside of these and on more exposed shores are species of *Coccoloba, Mimusops, Bumelia, Eugenia, Pithecolobium, Genipa, Cæsalpinia, Jacquinia, Erithalis*, and a few herbaceous plants.

On shores composed of the sand which results from the wear of corals and shells are found banks of the ashy-hued Sea Lavender (*Tournefortia gnaphalodes*), the greener Bay Cedar (*Suriana maritima*), *Borrichia, Cakile, Euphorbia glabella* and *trichotoma*, and certain coarse grasses. Inside of the litoral thickets, where there is more or less protection from sea winds, we come to rugged fields, cultivated or neglected. If cultivated, they afford a sufficiency of weeds and grasses to satisfy the botanist, but when allowed to lie waste for a year they become impassable by reason of the astonishingly rank vegetation which takes possession of them, everything being entangled and bound together by vines.

The chief natural impediment to locomotion in this almost tropical region consists in the abundance of tough and woody vines, and of trees which grow mainly in a lateral direction, sending out long, slender and often thorny branches near the ground. Several species vary in habit of growth, being shrubs in open ground and high-climbing vines when growing among trees. Such examples go to prove that the climbing habit is attributable to an attempt to reach direct sunshine, without which few plants can perform the important function of seed-bearing or reproduction.

There is no cause to fear the extermination of any herbaceous or shrubby plant, or of many trees, for the planters are constrained to leave skirts of forest around their clearings to protect their crops against the much dreaded hurricanes which sometimes visit these shores. For this reason none of the keys appear to be denuded of their forest covering, though we often perceive that the forests have receded a considerable distance from the outer shores. On the inner shores, and in many other places where the ground is too low for cultivation, the trees are secure against destruction.

There is a group of keys, to which allusion has been made, which presents a singular contrast to the range as a whole, in physical as well as botanical features. Throughout their whole extent of nearly one hundred and fifty miles in length the keys lie nearly parallel with the coast, but on the western side of the open waters called Bahia Honda, in a direction south-west from Cape Sable, there are several long keys whose trend is almost at a right angle with that of the other keys—namely, from north-west to south-east. The vegetation of these is strikingly different from that of the other keys, and most resembles the vegetation found on the mainland south-east of the Everglades.

This group of keys is covered with low and thin forests composed of *Pinus Cubensis*, *Thrinax argentia* and *T. parviflora*. The Pine is wholly lacking on the main range of keys. This and the Palmetto, which is represented by a few trees on Key Largo, are the only trees common to the southern and northern extremities of Florida. The Scrub Palmetto (*Sabal serrulata*) also occurs on these piney keys, and slender specimens of the Wax Myrtle (*Myrica cerifera*), which on the peninsula attains tree-like proportions. These four species, with two or three herbaceous plants, are the only ones common to the keys and the northern portion of the state.

A person who is acquainted only with the vegetation of more northern states, or with that of northern Florida, in traversing these keys will find scarcely a tree or herb identical with or even resembling those with which he has been acquainted. He may hear familiar names in use by the inhabitants, such as Cherry, Mulberry and Cedar, but on examination he will find the species thus designated to be entirely different from those which he has known by such names before. The curiosity is piqued at every step by some unfamiliar and interesting form of vegetation, and if the tourist be accompanied by one of the inhabitants he will learn much of the popular lore regarding names and uses, for these people are remarkably intelligent in regard to the vegetable and animal life of the region they inhabit. It will be found that almost all the adult inhabitants come from the Bahamas, that nearly all the trees and other plants are common to those islands, and, in short, that these islands have much more in common with the Lesser Antilles than with the Florida mainland.

A tour of the Florida keys reveals nature and society under such peculiar conditions that any one who has never visited this insular region may rest assured that there remains in store for him at least one source of novel and enjoyable experience, though he may have traversed the mainland of the United States from Maine to California. As regards conformation and soil, the inhabitants and their pursuits, the surrounding waters and the marine life they support, these coral islands differ essentially from all other portions of our vast country; but in no particular do they present so striking a dissimilarity as in the vegetation which covers them.

Jacksonville, Florida. *A. H. Curtiss.*

Foreign Correspondence.

London Letter.

THE Rose Show season began in London with a great exhibition at the Alexandra Palace in the last week of June, and rather early for exhibition blooms. On nearly every stand were fine flowers of Lady Mary Fitzwilliam, not a new Rose, and yet not common in cultivation, one of Mr. Bennett's great successes. Everybody is charmed with the Rose, its large size, superb form, and delicate, soft pink color. Then, again, its vigorous growth and free habit of flowering make it a first-rate garden Rose. It will certainly in time divide honors with the beautiful old La France, with which an uneducated eye always compares it. A sport from Lady Mary is called Lady Alice, which, I believe, originated in the Cheshunt nurseries. It differs from its sister Rose in color only, or rather in the absence of color, as the bloom is almost a pure white. The best white hybrid perpetual at the show was Violette Bowyer, but this, as well as other white Roses, like Merveille de Lyon, will be better later in the season. A very rich-colored Rose is Ulrich Brunner, which still may be called a new Rose, and one that is likely to become a favorite, as the "build" of the flower is admirable.

Among the newer Tea Roses were Madame Cuisin and Madame de Watteville, both of which differ from most other Teas in color. Their flowers, instead of being entirely of one tint, have the petals exquisitely washed or flushed with a clear pink, while the form in both is perfect, especially in the half-expanded stage. Ladies fix upon these two Roses at once, and that is not a bad test of their merits. Grace Darling, another of Bennett's seedlings, was very fine, the richness of the color, a clear pink, being most pleasing. This is a Rose of the highest merit, not only for exhibition, but as a garden Rose. I saw to-day a bed of it, and every bush (there were a score or more) was literally covered with bloom—good, well-formed flowers, fit for exhibition. The habit of growth and foliage also being so vigorous, leaves nothing to be desired. It has been in flower in the open since the first week in June. A new Tea, shown by Mr. Prince, of Oxford, named S. A. Prince, has flowers of fine form, pure white, and scented strongly. It is, of course, premature to speak of its merits from exhibition blooms alone.

The new hybrid (also one of Bennett's) named Mrs. John Laing, was marvelously fine, as may be gathered from the fact that it took the first prize in the class for any kind of Rose. This Rose is a triumph of English Rose raising, and will tend to refute the prevalent idea that good new Roses can only be expected from the Continent. I have this week had a private view of a very beautiful new Rose, which Mr. Bennett has named Cleopatra. It is a true Tea, and if I were asked to compare it with an old sort I should say it was most like Catherine Mermet. But it is different, because finer in size, in form, in color and in perfume. It is one of the deepest "built" Teas I have seen, and the petals are large, of wonderful substance, as if chiseled out of some hard material. The color is a soft rose pink, with a suspicion of buff in the tint, and therein lies its peculiarity. The flowers, three parts open, are matchless in form, and the perfume is exquisite. Cleopatra has been seen by a few people only, but all agree that she is a veritable queen among Roses. I also saw at the same nursery the lovely Princess Beatrice, which has always seemed to me one of the very best of Tea Roses, and yet I was told the other day by an American nurseryman that it was considered of no value with you. But surely the flowers cannot have been seen in perfection. It could scarcely have had a fair trial, seeing that it was only sent out last June. The flower is large, the form perfect, the scent unsurpassable, and the color delights everybody. In fine blooms the outer petals are yellowish white, washed with rose, the inner all closely packed, an apricot yellow deeper towards the centre. The leaves have ruddy-tinged stalks, and are broad and of a very deep green color. If I were confined to a select dozen Tea Roses, Princess Beatrice would certainly be one of them. Another new Tea that has been talked about a good deal this season is Sappho, which Messrs. Paul, of Waltham Cross, have exhibited. I should compare it with Madame Berard, the near relative of Gloire de Dijon, as the blooms are alike in color, though different in form. Sappho has prettily-shaped flowers, very full and deep, and of a warm apricot yellow, and perfumed with the delicious scent characteristic of the old Gloire de Dijon. As a pot bush it is uncommonly vigorous, and the large number of flowers and buds show it to be a free flowerer.

This year has brought an exceptionally large crop of new varieties of the Polyantha Roses. Bennett has sent out two named Golden Fairy and Little Dot, which look uncommonly like twins. Both have tiny, very double flowers of a deep apricot tint, flushed with pink, but Golden Fairy is the lighter of the two, and the half-open

flowers look like the buds of W. A. Richardson, as the color fades at the edges of the petals, and gives that soft gradation of tint which all admire in the Richardson Rose. These fairy Roses are favorites with the florists already, as they work up so nicely as button-hole bouquets. The Cheshunt Pauls have shown a pretty new miniature Rose, called Red Pet, which is really a pigmy China Rose. The color is bright crimson, and though the blooms are not up to the florist's ideal, they are very telling on account of their color and profusion.

London, June 30th. *W. Goldring.*

New or Little Known Plants.

Cypripedium Californicum.*

THIS species of Lady's-Slipper, from the Pacific coast, is notable for its large leafy bracts and for the number of its flowers. The stem is sometimes two feet high, with numerous leaves, which continue to the top, with little reduction in size, the upper bearing in their axils a single, nearly sessile flower. The sepals and petals are greenish yellow, short, and nearly equal in length, the two lower sepals united into one, and about half an inch long. The saccate lip is but little longer, and is white or tinged and spotted with pink. The species is common in the mountains of northern California, growing in the open woods in damp soil or swamps.

S. W.

Plant Notes.

Two Rare Orchids.

ORCHID lovers have been interested of late in the simultaneous blooming of two rare plants in the possession of Messrs. Siebrecht & Wadley, at New Rochelle. The one, *Zygopetalum Sedeni*, formerly belonged to the Morgan collection; the other, a white variety of *Cattleya Gigas*, is certainly unique, since it is the only specimen known to exist. It came with a lot from Siebrecht & Wadley's collector in Colombia, who reported that there was a new species among them, but the mark for identification was lost in transit, and the plant was not known until it flowered last season. This year it is much increased in strength and size, and now bears four spikes of bloom.

The flowers are held boldly erect; the petals and sepals stand out, and are pearly white. The lip is large, crinkled into a little frill around the edge; it has a slight mauve tinge, like a delicate reflection. The throat is pale yellow, while on each side is the yellow eye-like spot which characterizes *C. Gigas*. There are four or five flowers on each peduncle, large and showy. *C. Gigas* is generally regarded as the finest *Cattleya* known, and this new variety certainly deserves high rank among those with dale-colored flowers. It is probably the most striking novelty in Orchids now in the country.

The rare *Zygopetalum Sedeni* is an interesting garden hybrid, the result of a cross between *Z. Maxillare* and *Z. Mackayi*. It has narrow lanceolate leaves, and strong spikes of singularly

Fig. 45.—Cypripedium Californicum.

*C. CALIFORNICUM, Gray, Proc. Am. Acad., vii. 389; Bot. Calif., ii. 138. Pubescent, leafy; leaves ovate-lanceolate, acute, the upper narrower and acuminate; flowers three to six, on short pedicels in the upper axils; sepals greenish white, broad, acute, one-half inch long, the lower united to the apex, about equaling the narrower petals; lips slightly longer, oblong-obovate, white or pinkish, pubescent within at base; capsule reflexed.

dark flowers. The sepals and petals are dark purplish brown, having a regular border of pale green; there are no bars, as in the case of the parents. The broad, round lip is of a brilliant purple, veined at the margin; the ruff a bright bluish purple. It is very distinct from any other Zygopetalum, though approaching *Z. Mackayi* in habit.

This plant was originally imported by Mrs. Morgan, but it never flowered until in the hands of its present owners.

New York. *Emily Louise Taplin.*

Cultural Department.

Strawberries.

WE have tried most of the leading kinds of Strawberries here and have now twenty-eight varieties in our trial bed, but never have had a better Strawberry for our ground than Sharpless. It is a vigorous grower and retains its foliage in good condition throughout the summer; it is a heavy cropper, and its berries are exceptionally large, handsome and well colored, and with us it always ripens to the tips. But, except under high cultivation and in deep, rich, moderately moist land, it is not as desirable as some others. Our first berries this year were pronounced by connoisseurs as "most delicious," but this quality in Sharpless is unusual. In May abundant rain fell with no very high temperature—just such weather as is most suitable for Strawberries; June opened dry and warm, the best weather for ripening fruit, and to these causes are attributed the fine quality of the early berries. But the 16th of June brought hail and rain, and soon after the Sharpless berries assumed their characteristic sourness. Henderson, Hovey, Belmont and Wilder are of much better quality, but each one of them with us has some fault—lack of vigor, uneven ripening, small fruit, or other drawback—and even Louise and Mineola, both delicious berries and raised not far from here, do not, after a two years' trial, warrant us in using them for a main crop. As a heavy cropper and for use as preserves, the Crescent has been our favorite; but in its fresh state it is much more acid than Sharpless, and not nearly so large or handsome. For fine quality and aroma, our American varieties are not as good as the European Strawberries, but, unfortunately, these are of no use here. All the finest English varieties have been imported and grown on this place, and every one of them has been a failure.

Farmers and market gardeners, as a rule, grow their Strawberries in the open field, in rows two and one-half to three feet apart, and after the first year allow the runners to grow and remain, so as to form matted beds. But we have no room for horse cultivation. Farmers generally plant their Strawberries in spring; we always plant in August. And from this planting we not only get an excellent crop of fruit the next June, but we always get our very finest and largest berries from these young plants. And we so manage it as to renew half of our plantations every year; the young or one-year-old plants yield the finest berries, the two-year-old plants the heaviest crop.

Strawberries for home use should have the very best ground in the garden. Plan in spring where the next Strawberry bed is to be made, and then plant the ground with Peas, Snap Beans, Cauliflower, Beets, Onion-sets, or any other early crop that has time to mature and be off the ground before the end of July. It is not advisable that Strawberries should succeed Strawberries, still we have a piece of deep, moist land, so well adapted for Strawberries, that we have cropped it with them continuously for several years, but, notwithstanding the most liberal treatment and annual renewing, the plants are showing signs of enervation, and are not now as luxuriant as they used to be two or three years ago. After clearing off the summer crop apply a coating, two to three inches deep, of well-rotted farm manure, then double dig the ground with forks, being careful to break it up very fine and loose and keep the manure not deeper than four or five inches under the surface of the ground. Now measure and mark off the patch in rows twenty inches apart by drawing drills an inch or two deep. You may plant at once or delay till your plants are ready or convenience will permit.

Set out the plants eighteen inches apart in the rows, or, if an extra heavy crop is desired the first year, instead of setting them out singly set them out two together. Water well after planting, and in the event of dry weather, continue to water the plants two or three times a week while the drought lasts. The stronger the plants become before winter sets in, the larger the crop of berries they will bear next summer. Throughout the fall keep the young plants free from runners and the ground perfectly clean and well hoed. About the middle of November break up some barn-yard manure fine and scatter it broadcast over the Strawberry ground, say an inch or more deep. Then again, about the middle of December, or after a firm frost sets in, and before lasting snow may be looked for, scatter some sea thatch, sedge or salt hay two inches deep over the plants, and so as to cover the whole patch. This mulching and covering prevents the plants from being thrown out of the ground by frost, and also saves the crowns and leaves from being injured by hard frost, searing frosty winds, or warm sunshine.

In field cultivation this straw covering is allowed to remain permanently, and the Strawberry leaves and flowers come up through it in spring, and it also serves as a summer mulching to keep the fruit clean. This is not our plan. The covering is removed early in April, the ground is cleaned and cultivated two or three times, and then about the 1st of May mulched again with strawy material. In cultivating the ground use a prong-hoe; this loosens and breaks up fine the ground between the plants and allows a ready ingress for rain and air. Its effect upon the plants is shown in their vigorous condition. Of course, any time before the fruit begins to ripen is soon enough to apply the summer mulching, but by doing so early in May there is not the danger of injuring foliage or flowers, which there would be were it delayed till the end of the month.

Strawberries usually begin to ripen here about the 10th of June and last till the end of the month; this year we did not pick our first dish till the 14th of June, but they lasted till the 4th of July. Some days before they begin to ripen the catbirds and robins are particularly voracious and peck every softening fruit. In private gardens, where these birds find shelter among fruit and shade trees, shrubs, bushes and vines, they are more numerous and destructive than in the open fields. We circumvent their attacks by erecting a temporary frame around and over the beds, and spread over it some netting, as described on page 176. As soon as the strawberries are gone the frame is removed. The netting is folded up and laid indoors till the first of September, when it is brought out to cover the grape-vines; the stakes are needed at once for Dahlias, Hollyhocks and Sun-flowers.

After the busy season is over the one-year-old plantations are thoroughly cleaned; weeds and straw mulch are removed, and the surface is loosened with a prong-hoe, care being taken not to injure the runners. This allows them to root readily. The two-year-old plantations are dug out and removed at once.

Before the end of July many of the runners are large and sufficiently rooted for setting out, and, the ground being ready, had better be transplanted at once. By using potted runners we can plant at any time, in dry or moist weather, and if the ground is not yet ready for the new plantation, we can lift and store the pot plants close together somewhere by themselves, and, in this way, are enabled to strip and clean the plantation from which they were taken. We use three and one-half and four inch pots; a double row of these is plunged in every second alley to the depth of half an inch below their brims; half fill them with sandy soil, then place a runner crown in each pot, bending the thread of the runner in, too, and then fill up with the same sort of soil. It is very easily and quickly done. The runners root readily in the fresh soil and in fourteen to twenty days have filled the pots with roots, and may then be severed from the parent plants, and the pots lifted out and removed from the beds. From this time till fruiting time next summer not a runner or a weed should be allowed to grow in the plantation.

Glen Cove, N. Y. *Wm. Falconer.*

The Currant and its Cultivation.

THE currant crop has been a good one and the demand has been equal to the supply. It is not strange that so excellent a dessert fruit when fully ripe and so fine a canned fruit either alone or with raspberries for winter use should be in heavy demand. And yet in too many instances the quality and size of the fruit is allowed to suffer from the attacks of the Currant worm when a little hellebore and its timely application will prevent the loss. It is no uncommon spectacle even in gardens ordinarily well kept to see Currant bushes entirely stripped of their foliage, and the fruit ripening prematurely exposed to the full rays of the sun, inferior in size, and deficient in flavor. Such fruit is not fit for table use in a fresh state, neither can it be as good for canning. A tablespoonful of white hellebore to a two-gallon pail of water sprinkled on the bushes, will rid them of the pest and the fruit will ripen in perfection.

Of course there is no danger from the use of this drug even to those who hold that the flavor of fruit is impaired by washing. It is surprising, by the way, that water in the form of rain and dew does not rob a currant of its flavor, while dipping the cluster into cool clean water is said to have such a deleterious effect upon its quality.

Satisfactory crops of currants are only possible with good culture and a soil enriched with plenty of manure. The old Red and White Dutch varieties will produce fruit that will compare favorably in size with more modern introductions. The large fruit of the Cherry and Versailles Currants will depreciate in size by neglect and the productive qualities will be seriously impaired. As a rule I have found the latter to be the more productive of the two, while the White Grape is the best of all in quality. For the last decade these three varieties have been the most popular ones before the public. Some four years ago when Fay's Prolific was announced the claims for it were regarded as extravagant, but now after it has been duly tried it has been found to be one of the few new fruits which justified the rosy promises of the advertiser. Those who had the courage to try the new fruit in a small way regret now that they did not venture to buy more. Such a fruit is a fitting monument to any man's memory. A White Currant of as fine flavor as the White Grape with the other merits of Fay's would be a welcome addition to the list.

In Black Currants we have not found any great improvements. The most recent addition we have tried is Lee's Prolific, but the improvement over the old Black Naples is very slight, if any. While young there is a semblance of increased size and productiveness, but it does not seem so apparent after the bushes reach maturity. The demand for this fruit seems on the decline. Its peculiar pungent flavor and aroma are disagreeable to most native Americans, but when made into jellies or preserves it is distinctly good, and its various preparations are supposed to possess valuable medicinal properties.

Some years ago the late Shelby Reed, of western New York, sent me several samples of wild Currants and Gooseberries, natives of the great western plains of Colorado. These varied in color from black and red to yellow. They were of good size and very productive. Whether he attempted to improve or acclimate them at his home I do not know, but I consider the field a fine one for experiment, and well worthy the attention of those who have the time and inclination to enter it.

Montclair, N. J. *E. Williams.*

The Vegetable Garden.

CONTINUE to sow Snap Beans once a week in rows two to two and one-half feet apart. About the middle of the month sow French Etampes in rows eighteen inches apart and in a warm, sheltered spot; should these not be likely to ripen before frost comes, frames and sashes may be placed over them about the middle of September. Sow Bliss' Abundance and McLean's Advancer Peas in rows two feet apart; they will not need brush. Plant out Savoys, Cabbage and Cauliflower as ground becomes vacant. In localities where this planting will be too late Burpee's Extra Early Express Cabbage will yet form good hearts; it is a very quick-heading kind. Give Celery, either in the seed-bed or planted out, abundance of water; this is a plant which, from sowing till harvesting, should never know what drought means. Use rich land and mark it off into rows three to four and one-half feet apart, according as the Celery is needed for early or late use; if for early use it must be earthed up full in the rows, hence needs more room than if for late, when handling only is necessary. Sow a little Chervil in some odd corner for use in fall and to live over winter. Thin out Chicory plants to an inch or two apart in the rows. Cory was our best early Corn; sown late in May, it was ready for use by the middle of July. Marblehead was a few days later, but of better quality. It is too late for fresh plantings of Corn now. Egg plants are now swelling fruit. Do not let them suffer from drought and keep the potato beetles hand picked. A succession of Cucumbers may still be raised in frames. In the case of the vines out-of-doors, pick off all mature fruit, even if they are not wanted; by this means the old vines will continue longer in bearing. Scatter fresh tobacco stems under and about the vines to dispel aphides. Prevention is better than cure. Melons are now setting and swelling their fruit. Take pieces of boards, say four by six inches, and place one under each melon to keep it off the damp ground. Staves of old cement barrels are good for this purpose. Keep open pathways between the rows of hills for convenience in gathering; if the vines are allowed to grow together, we are apt to tread upon and destroy them in gathering fruit, pulling out weeds, or in doing other work among them.

Sow Lettuces for succession and plant out a little every week. Some Endive may also now be sown for plants to be used in November. Endive is not in demand, if good Lettuces can be had, but full-grown plants of it can be easier kept in cold-frames in winter than mature Lettuces.

Keep seed Onions growing as long as possible. The ground after them will be in good time for Strawberries or Spinach. Potato and Top Onions and those raised from sets, also Garlic and Shallots, are now harvested. Tie them into bunches and hang them up, or crop them close and spread them out on the floor or shelves in some dry, airy building.

Get in a main crop of winter Beets. Sow in rows eighteen inches apart. Treat Turnips in the same way, only they may be sown a week or fortnight later than Beets. Some people like winter Radishes—that is, such sorts as Scarlet Chinese, which are grown into good sized roots, and gathered and stored in moistish sand in winter like Carrots or Turnips. Large roots are not desirable; those of about one and one-half to two inches in diameter are large enough. Sown about the 25th of August, we get capital roots for storing; in less favorable localities they should be sown ten days earlier. But they are not as desirable as the succulent French Breakfast and Wood's Frame, which can be kept growing in frames or green-houses during winter. Finish sowing winter Carrots; if sown later than the first week of August they are not likely to be large enough before frosty weather sets in. The Half-Long Red Stump-rooted is an excellent sort. Among Tomatoes, Farquhar's Faultless was our earliest to ripen this year, but it is a very uneven, deep-ribbed sort. Early King Humbert and Volunteer were about two days later than Faultless; the Humbert, although extremely prolific, has not the large size or round form of the beautiful Volunteer. Early Advance came next in point of earliness; then Acme, and then the other varieties all about the same time. *G. C.*

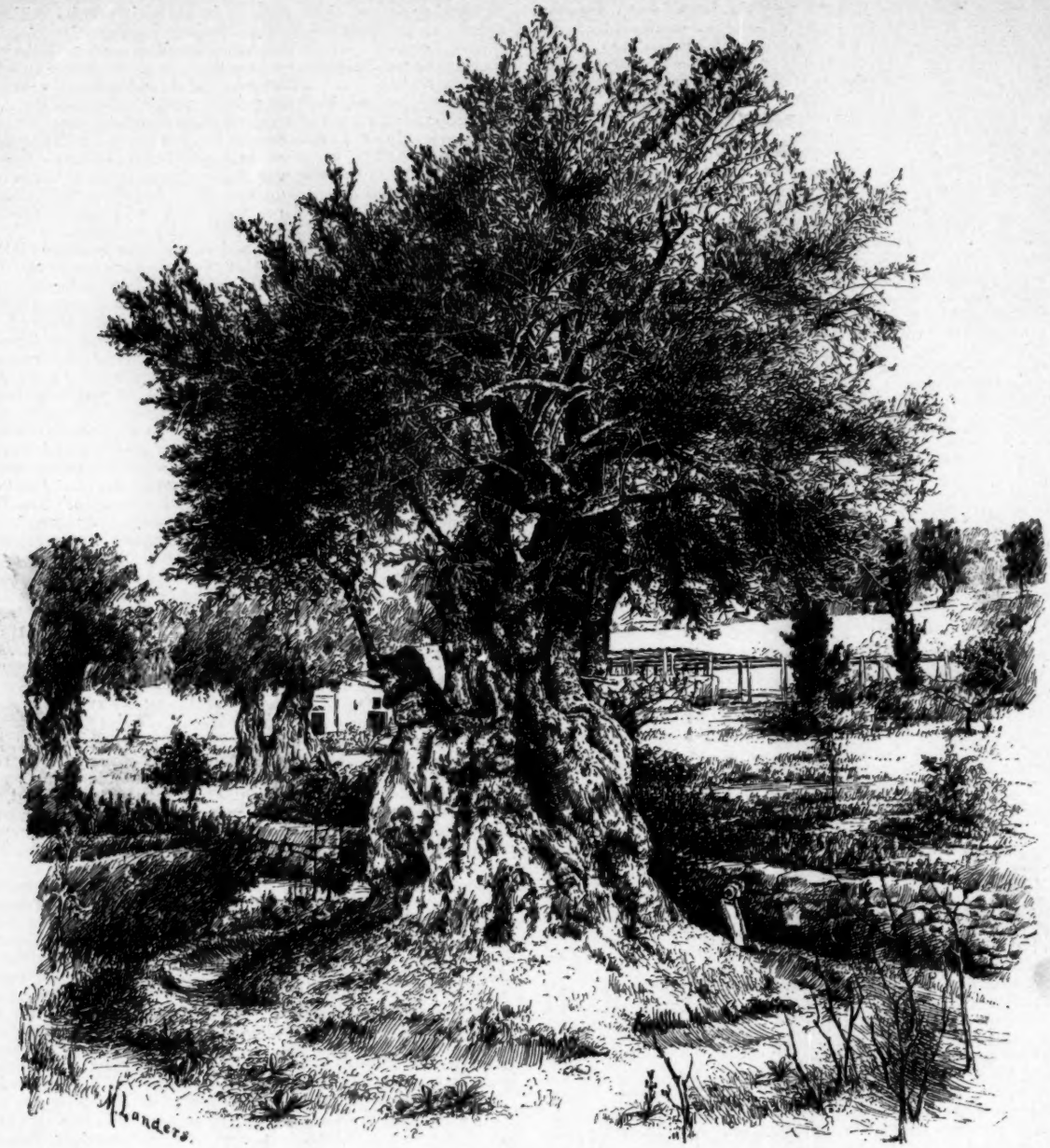
Long Island.

Some Floral Novelties.

Larkspur, Stock-Flowered Rosy Scarlet, is a new variety, with single, but often double, flowers, of a rose, rose-red or rose-pink shade. It is as free-growing and free-blooming as any other annual Larkspur, and it comes true from seed, but while there is in this variety a new shade of color among these Larkspurs, we do not get in it anything very striking or of much importance.

Statice superba is an annual species from Turkestan, sent out this year. In habit and general appearance it somewhat resembles *S. Suworowii*, which appeared a few years ago. Its foliage is sinuately cut and lobed and produced in flat rosettes, while from the middle of these tufts arise much branched or plumose spikes of small, pale, rose-purple flowers. But, so far, it is neither as pretty nor as vigorous as *S. Suworowii;* at least, so it appears here, and the two species are growing together.

Drummond Phloxes have, of recent years, been considerably improved, especially in the increased size and brightness and variety in color of the flowers; this large-flowered race is now known as grandiflora. Florists have succeeded in doubling the flowers of a white, and also of a red, variety, but the doubling is only semi-double, and, as regards the beauty of the flowers, it is more of an injury than a benefit. The double white comes fairly true from seed, but of the double red only a small percentage come double. Under the name of grandiflora fimbriata, there is a purple-flowered variety, with fimbriated or notched edges and a narrow edging of white, but, except as a novelty, it is of little value; the color is too poor. Evolved from this fimbriated flower and now distributed under the name of cuspidata, comes an extraordinary flower; each lobe of the corolla is furnished with one long, narrow, pointed segment and two lesser ones, and all bordered with a narrow, white band. But here again the color is only dark violet-purple. It is also distributed under the name of Star of Quedlenburg. Its singular appearance makes it a striking novelty, but, so far as beauty, showiness or general usefulness is concerned, it is not as good as the common, plain-flowered varieties. A large proportion of the plants come true from seed. There is also a dwarf race of Drummond Phloxes that are indispensable in their way; they are used in beds and borders with much neatness, but their greatest usefulness is as pot plants, for which purpose they are admirably adapted and largely grown by some florists. *W. F.*



Olive Tree in the Garden of Gethsemane.

Orchids in Bloom.—*Lælia callistoglossa.*—This Orchid is so named from its gorgeous lip, which rivals even that of its near relative, *L. bella.* In shape it is much like that of *L. purpurata*, with a fine undulated margin. The color is a rich purple shaded to maroon, the pale yellow throat being streaked with purple. It is the result of intercrossing *Lælia purpurata* with *Cattleya Gigas.* In growth it much resembles its seed parent. The flower, appearing when the growth is only half matured, is large, of a delicate rose color and delightfully fragrant. This hybrid is as yet very rare, but like the majority of hybrids, is so free growing that it cannot fail to be moderately plentiful in a few years. A warm house, with plenty of water while in active growth, should be given it, with only sufficient water to keep the bulbs from shriveling during the winter, and like all other members of this genus the roots should be allowed to ramble at will.

Cœlogyne pandurata.—This curious Orchid is now in flower with us; the remarkable combination of black and green in the flowers being so rare render it a very interesting species. The racemes bear eight to twelve pale green flowers about three inches across, the pandurate lip being irregularly streaked with black. It is an extremely free growing kind, often flowering twice in one year, and should be kept in a warm house all the time and liberally supplied with water. Baskets are best suited for it, filled with charcoal, and very little peat and moss, as it dislikes much material around its roots. It is a native of Borneo.

Kenwood, N. Y. *F. Goldring.*

The Olive Tree.

THE Olive tree has in all ages been celebrated as a special gift of Heaven and as the emblem of peace and plenty. The wild and the cultivated Olive were mentioned in the earliest books written in the Hebrew language; it was one of the trees of the promised land of Canaan; and it was a branch of this tree which the dove sent out by Noah brought back into

the ark. The Olive was cultivated by the ancient Egyptians, and by the Greeks during several centuries before the Christian era. They brought it probably from the southern part of Asia Minor, where extensive forests of the wild Olive still exist; at least this is the opinion of M. Alphonse De Candolle, who, in his "*Origine des Plantes Cultivées*," has collected what is known of the early history of the Olive tree. Whatever region may claim the honor of being the first home of the Olive, it has now become widely distributed, primarily by man, and secondarily, and very considerably, no doubt, by the action of birds, being found in a more or less wild state from the drier regions of India through the Levant and the whole of the Mediterranean Basin to Portugal, Morocco, Madeira and the Canary Islands, where De Candolle doubtfully suggests it might have been carried by the Phœnicians.

The Olive (*Olea Europæa*) is a tree with a short, stout trunk, three to six feet, or even more, in diameter, divided a few feet from the ground into a number of large branches. It reaches, under favorable conditions, a height of forty or fifty feet. The bark, which is gray, is quite smooth on the branches and on the trunks of young trees, becoming rough and deeply cleft on old trees. The leaves are opposite, persistent, coriaceous, lanceolate-acuminate, less than an inch long on the wild plants, an inch and a half to two inches and a half long on some of the cultivated varieties. They are entire, dark green on the upper, and covered with a pale tomentum on the lower surface.

The small white flowers appear in axillary racemes equaling the leaves in length. The ovoid fruit of the wild plant hardly exceeds a red currant in size, while in some of the cultivated varieties it is considerably more than an inch long. Not more than one or two fruits develop then from each raceme, although in the case of the wild plant there are often six, or even more. The fruit, which in most of the best varieties is black when ripe, is covered with a smooth and shining skin, covering a soft green pulp filled with oil, and adhering to the hard, oval, oblong stone, pointed at both ends, and consisting usually of a single cell by abortion, and containing a single oily seed. As might have been expected in the case of a plant carefully cultivated for centuries in different countries, and by different races of men, many varieties of the Olive have been developed. No less than thirty-two such varieties are described systematically in the *Nouveau Duhamel* (v., p. 70, *t.* 25 to 32), where by far the best account of this tree, its economic uses and the methods employed for the preparation of its products, may be found.

The Olive flourishes in regions of small rainfall and in the most arid and barren soil, preferring that which is strongly impregnated with lime; but it will not support more than a few degrees of frost. Henry Laurens, a merchant of Charleston, in South Carolina, introduced the Olive into America about the year 1755. It is recorded that his trees bore fruit, "which was prepared and pickled to equal those imported." There are fine Olive trees on the southern end of Cumberland Island, off the Georgia coast, which bear fruit every year, and which must be nearly a century old. The climate, however, of the southern Gulf States, is not well suited to this tree, but on the Pacific coast in southern California, where it has grown for more than a century about some of the old Catholic missions, it is perfectly at home, and the cultivation of the Olive and the manufacture of Olive oil is one of the most promising of the younger California industries. The ancient Olive tree, which is illustrated upon page 284 of this issue, is of peculiar interest. It is a venerable and characteristic specimen of a tree which has few rivals in its usefulness to the human race, while individually it is one of the best known and most interesting trees in the world. It stands in the Garden of Gethsemane, at the base of the Mount of Olives, near Jerusalem, and is known as "The Tree of Agony," being popularly supposed to have witnessed the vigil of the Saviour.

Notes From the Arnold Arboretum.

"SHRUB," or Strawberry Bush, as *Calycanthus floridus* is commonly called, was once considered an essential feature of every old-fashioned garden; and its fragrant, dark brown flowers are perhaps known to as many people as those of any American shrub. There are, however, two other species of this genus with the same brown and fragrant flowers, which are not often cultivated, although they are hardier than *C. fragrans*, which in severe winters is often killed down to the ground; and which flowers here early in June, or some time earlier than *C. lævigatus* and *C. glaucus*, which are now in bloom here. The former has large oval leaves, gradually acuminate at the apex, green on both sides, and only slightly rugose on the upper surface. In *C. glaucus* the leaves are narrower, and considerably larger than in the other species, pale below, with a few hairs along the mid-rib, and rugose on the upper surface. It has large flowers, and rigid, upright branches, which are sometimes six or eight feet high. The three species are natives of the Alleghany region from Virginia to Tennessee and Georgia, *C. lævigatus* extending as far north as southern Pennsylvania. Gardeners have too long neglected this last species, which is one of the most desirable of all hardy summer-flowering shrubs.

The shrubby Cinque-foil (*Potentilla fruticosa*) is one of the most widely distributed plants of the north temperate zone, being found through the northern portions of North America, in many parts of central and northern Europe, and through central and Russian Asia to Japan. It is a dwarf and branching shrub, two to three feet high, an inhabitant of low ground, and just now a conspicuous object, with its large, terminal, pale yellow flowers. The leaves are pinnate, with five to seven pairs of crowded, pale, silky, leaflets. The short, flowering branches die down annually, but the base of the stems is truly woody. This has been found a useful plant in the Arboretum for forming masses of low shrubbery among trees, as it spreads rapidly from underground shoots, soon taking complete possession of the ground. It may, however, become, like *Genista tinctoria*, a dangerous weed if allowed to spread indiscriminately. It has indeed already overrun and utterly ruined considerable areas of mowing land in some parts of Berkshire County, in this State, and in Connecticut, where farmers find it almost impossible to eradicate this plant, and where it is known as "Hardhack." *Potentilla tridentata* is another woody species now in flower. It is found sparingly on the New England coast north of Cape Cod, on the coast of the Great Lakes and upon the summits of some of the high mountains of eastern North America. It is a low, spreading plant, only a few inches high, with handsome dark green and shining, palmate leaves, with three wedge-oblong divisions, coarsely three-toothed at the apex, and loose cymes of white flowers, half an inch across. This is an excellent plant for the margins of the rock-garden, as it remains a long time in flower, while its foliage is ornamental throughout the season.

Among the Leguminous plants now in flower, *Amorpha canescens*, the Lead Plant of the western prairies, is by far the handsomest and best worth notice. It is a spreading bush, two or three feet high, softly canescent and hoary throughout, with pinnate leaves, composed of fifteen to twenty-four pairs of minute leaflets and spikes of handsome bright blue flowers aggregated in a terminal subsessile panicle. It is found on dry and sandy prairies from the Red River of the North to Texas, and its presence is popularly supposed to indicate the presence of lead-ore. It is an admirable and very hardy plant in cultivation, remaining in bloom during several weeks. The Lead Plant is rarely seen in gardens, however, although one of the first of our western plants known to botanists; and, although it was introduced into England as early as 1812, no figure of it was published until 1882, when it appeared in the *Botanical Magazine* (*t.* 6618). In the same volume of this Magazine appears the figure of another plant of the Pea Family, *Lespedeza bicolor*, now in flower. It is a native of north-eastern Asia from Manchuria and northern China and Japan, and is considered one of the most beautiful of the hardy shrubs introduced of late years into cultivation. *Lespedeza bicolor* is a slender, leafy shrub, four or five feet high, with slender, elongated and very graceful branches, three-foliate leaves on long, slender petioles, with oblong, obovate leaflets, and axillary or rarely terminal drooping or sub-erect racemes of showy rose-colored flowers, an inch long, which are described as sometimes white or violet. This is a perfectly hardy plant and remains a long time in flower.

A Heath-like plant, *Dabœcia polifolia*, is in flower. It is a dwarf shrub with slender ascending branches one or two feet high, covered with small, narrow leaves, which are dark

green on the upper surface, and snowy white below, and large white, purple or rose-colored nodding flowers arranged in loose terminal racemes. "St. Dabeoc's Heath" is a native of south-western Europe, where it sometimes covers barren and gravelly wastes; and it is found in one or two stations in Ireland. Here it is a delicate and not very hardy plant requiring careful protection in winter and frequent renewal; and in spite of its beauty it can hardly be recommended for general cultivation in the climate of the eastern United States.

Rhamnus Frangula is a widely distributed European and North Asian plant, closely related to the Carolina Buckthorn of our Middle and Southern States. It is a tall, erect, unarmed shrub, growing to a height of eight or ten feet, with slender branches, handsome, glossy, pale green foliage, and small, axillary, yellow flowers, which are followed by rather conspicuous fruit, which is at first green, then bright red, and finally, when fully ripe, quite black. This plant continues to produce flowers in great profusion all summer long, and is covered during several months with flowers and with fruit in all stages of development, a peculiarity which, as well as its handsome foliage and entire hardiness, should give this Buckthorn a place in collections of deciduous shrubs. The wood is known in England as black dogwood, and in common with that of other species of the genus, has a considerable employment in the manufacture of gunpowder. Another plant which flowers here from the middle of July until the coming of frost, and which produces flowers and ripe fruit simultaneously, is the Chinese Lycium (*L. Chinense*), near relative of the well known and familiar Matrimony Vine of all old-fashioned gardens (*L. Europæum*). It has long, pendulous, or prostrate, armed branches, ten or twelve feet long, ovate-acute, dark green leaves, rather large pale purple flowers, and abundant, showy, bright scarlet, oval or oblong fruit, which is nearly an inch in length. This is a free growing and very hardy plant, admirably suited to train upon pillars or over trellises, and in every way more showy than the European Matrimony Vine.

Attention has been directed in an earlier issue of these notes to the great value of *Spiræa sorbifolia* as an ornamental plant; mention must now be made of a variety of that plant cultivated here under the name of *S. Tobolskia*, a name not referred to by Maximowicz in his monograph of Spiræa, and here applied to a plant probably of garden origin, and which only differs from *S. sorbifolia* in its much smaller panicles of flowers, and in the fact that it blooms from two to three weeks later. It is an equally hardy and desirable plant.

Aralia hispida, the Wild Elder of northern woods, may perhaps be considered a shrub, as the base o the stems are truly woody. It is a useful plant, largely grown in the Arboretum for covering the ground under trees and larger shrubs, for which purpose its habit of spreading rapidly by means of underground shoots well adapts it. It deserves notice, too, as a purely ornamental plant; the foliage is bold, the large, compound corymbs, composed of umbels of yellow flowers, make it conspicuous during the early weeks of July, and these are followed in autumn by showy, deep purple fruit.

Rosa setigera, the Michigan or Prairie Rose, is in flower. It is a widely distributed species, being found from Ontario and Wisconsin to Texas, South Carolina and Florida; and the only American Rose with climbing stems. It is the origin of the Queen of the Prairies, Baltimore Belle, and other double flowered climbing Roses, and in its single state is one of the most beautiful of our climbing plants, with broad and handsome foliage, and broad, flat corymbs of large flowers, which are sometimes nearly three inches across, and deep rose color when first expanded, but turning nearly white before fading. The Prairie Rose requires rich, deep soil and generous treatment to develop its greatest beauties, but when well grown it surpasses in beauty any of its progeny. *J.*

July 21st.

The Forest.

The White Pine in Great Britain.

Mr. A. D. Webster, in a recent issue of *The Garden*, makes the following interesting statements in regard to the White Pine (*Pinus Strobus*) in England, called forth by Dr. Mayr's article upon this tree in the first number of Garden and Forest. They are all the more interesting because it is now very generally believed by English planters and nurserymen that this tree does not flourish in that country, where for some reason or other it is certainly much less frequently seen than on the continent of Europe.

"Next to the Corsican Pine (*P. Laricio*), I consider the White, or Weymouth Pine, whether as an ornamental tree or for economic planting, the most valuable of the many Pines that have yet found their way into this country. The woods at Gwydyr Castle, in North Wales, and of many other places that I could name, amply substantiate Mr. Mayr's remarks as to the great value of the Weymouth Pine as a rapid timber-producer, and likewise as to its yielding under similar conditions to the Scotch Fir (*P. sylvestris*) a far greater amount of wood than that valuable and much-cherished tree. Let us look at these Gwydyr specimens and compare their rate of growth and bulk of timber with that of the Scotch Firs with which they are associated. Unfortunately, we do not know when these trees were planted, but one thing is pretty conclusive, that the whole wood, which crowns a shingly-soiled hill in the romantic and picturesque Conway Vale, was planted at or about the same time. The Weymouth Pines are now what might in truth be termed giant specimens, for I am under the mark in stating that the average height is fully 90 feet, and the girth of the flag-pole-like stems between eight feet and nine feet at a yard from the ground. Straight as ship masts describes well their appearance, they being smooth, nicely tapering, and destitute of branches for about three-fourths of their height. About the biggest Scotch Fir in the same wood is between seventy feet and eighty feet in height and with a bole fully seven feet in girth. Were we to touch on cubical contents, the differences in these two species of Pine would hardly be credited, and should any one feel inclined to doubt the genuineness of these statements, Mr. McIntyre, agent on this historic Old Welsh estate, will gladly vouch for their accuracy. The soil at Gwydyr is of a rocky, shingly nature, largely intermixed with the richest of vegetable refuse, fairly moist at all times, but without stagnant water. Situation not sheltered, yet not fully exposed. On another estate in Cambria I have measured specimens of the Weymouth Pine 57 feet in height, and with stems fully 50 inches in girth at a yard up, the trees being only thirty-one years old.

"At 1,200 feet above the level of the sea, at Strathkyle, in Ross-shire, the Weymouth, in conjunction with the Corsican and several other species, is doing well and making rapid progress. Then look at the Longleat trees, which are fully ninety feet in height, not long drawn-up poles, but huge stems fully eight feet at breast high. I will say no more about how it succeeds in this country, for that it does well I am quite convinced.

"But some may ask, What about the timber? for plenty of foreign trees do fairly well in this country, and yet are valueless as timber-producers. I also know something of this, and am able to speak of it in terms of the highest praise.

"The timber, judging from the specimens I have had a chance of converting into boards, is of exceptional quality, being clean and very easily worked, of a desirable color, and, from experiments instituted five years ago, of a lasting nature."

Correspondence.

To the Editor of Garden and Forest:

Sir.—I should be grateful for some advice as to the best plants and shrubs for the adornment of a small place at Falmouth, on the southern extremity of Cape Cod. Excepting a strip of the original ground, the land has been reclaimed from a salt marsh. The place seems too limited to justify the calling in of a professional landscape gardener, but I am inclined to spare no pains to make the planting effective. *F.*

Falmouth, Mass.

[Our correspondent, in common with nine hundred and ninety-nine persons in every one thousand, who want to treat a small piece of ground to the best advantage, makes the mistake of thinking that "the place seems too limited to call in the aid of the professional landscape gardener." A trained artist is needed to develop the possibilities of beauty, convenience and usefulness in a small as well as in a large piece of ground, and his knowledge and ingenuity may be more seriously taxed to make the most of a plot of ground containing a few hundred square feet than of a park of hundreds of acres. It is, of course, quite outside our editorial duties or aims to give specific instructions or advice about laying out or planting particular places. Such advice to be of any practical value must be based upon exact knowledge not only of local conditions and surroundings, but of the taste and wishes of the proprietor in regard to the character of his place and of the

amount of money he is able or willing to spend on it. It may be said generally, however, that this particular location, in common with many others on the shores of Cape Cod and at other points on the New England coast, is exceedingly exposed to high, cold winds, and that the soil is thin and light, and therefore seriously affected by droughts in all but exceptional seasons. Trees, even if they could be made to grow at all in a position so near the shore, would not be very satisfactory, and a lawn of close-cut turf had better not be attempted, as it would be pretty sure to be burned brown all summer long, and to be anything but an object of beauty. Much of the New England coast-region is unsuited for gardening, as that term is popularly understood, an art which finds expression in trim lawns and in beds of plants with colored foliage. The art of true gardening consists in making the most of natural conditions, and not in attempting the impossible or the unnatural for the sake of imitating the fashions of other countries. A large part of the region in question is covered with broad expanses of shrubbery composed of dwarf Plums and Viburnums, Huckleberries and Blueberries, Sumach and Wild Roses, Bayberry, Sweet Fern, Inkberry, Smilax and other dwarf shrubs, combined together in natural masses unsurpassed in their peculiar way in any other part of the world, and which are bright and fresh from the early days of spring until the autumn frosts make them blaze with new beauty. It is from among these native plants of New England that the material for the embellishment of the grounds of New England sea-shore homes should be selected, and the combinations of these plants which Nature makes are those which must be studied, if the best which these homes can be made to express in beauty is to be attained. Let any one compare a mass of the native shrubbery sweeping down to the shore on Mount Desert, or on the southern shores of Cape Cod, with the ordinary improved grounds which may be seen about the villas in these places, with brown lawns and sandy walks, with here and there a stunted Scotch Pine or a Cut-leaved Birch, and with beds half filled with forlorn Geraniums or dried-up Coleus, and he will see that large expenditures of money, when not directed by adequate knowledge and taste, may, in attempts at gardening, expel from a spot naturally beautiful all its native charms, without supplying anything in their place—either artistic or pleasing.—Ed.]

To the Editor of Garden and Forest:

Sir.—I notice in your issue of June 27th that our company is credited with the introduction of that beautiful Japanese shrub, *Symplocos paniculatus*. Will you allow me to state that Mr. Thomas Hogg was the introducer, and we only the disseminators. Mr. Hogg brought from Japan so many beautiful things which have produced no profit, either to himself or to us, that all due credit should be accorded to him. I am the more anxious that this should be done here, since I have never been able to get the American introducers of new plants from Japan recognized in English periodicals. I sent a painting of the beautiful *Magnolia parviflora* to an English paper, with a careful description taken from a flower before me, and naming Mr. Hogg as the introducer. This description was ignored, a very meagre note took its place; and while we were recognized as the senders of the painting, Mr. Hogg was entirely ignored as the introducer. This experience was repeated in the case of the Hydrangea named for him, and in the case of the Japan Maples, the whole collection of which was sent to us by Mr. Hogg. I may add Dr. Hall was treated in the same way.

Flushing, L. I. *Sam'l B. Parsons.*

To the Editor of Garden and Forest:

Sir.—Throughout Minnesota and Dakota, along the north side of railway embankments, the south side of railway cuts, and on breakings that have lain a year or more, little trees come up and grow until weeds and grass form fuel enough for a fire to kill them.

On the prairies and plains these seedlings are not abundant, but still they do come up.

I believe that if fires could be kept from running over the land, with occasional tree claims to furnish plenty of seed, trees and shrubs would soon come in and improve this country very much.

Mandan, Dakota, July 13th. *H. B. A.*

To the Editor of Garden and Forest:

Sir.—Reference was made in Garden and Forest, July 18th, to Locust and Elder flowers being used in Europe as delicacies for the table. Of the Locust I cannot speak from experience, but I can of the Elder. The flowers of the common Elder, stripped from the stems, are excellent ingredients in waffles or "flannel" cakes. These flowers add a delicious flavor to the cakes and are considered healthful. People who are not quite æsthetic enough to live on the perfume of Lilies, may find in Elder blooms a seasonable diet. *H. V. A.*

Palmyra, N. J.

Periodical Literature.

In the *Popular Science Monthly* for July is an article by Mr. Grant Allen, even more attractive than the one on "The Bread-fruit of the Desert" to which we recently called our readers' attention. This time his subject is "Gourds and Bottles" while his place of observation is again the north coast of Africa. The great family of Gourds (*Cucurbitaceæ*) is known to us in this country through our cultivated Melons, Pumpkins and Cucumbers, and through a few wild species none of which produces a fruit of any great size. But the fruit of the true Gourds of which Mr. Allen writes, is familiar not only through imported dried specimens made to serve as bottles, but through the innumerable pottery and porcelain imitations of these bottles which are so characteristic of the art of every southern and eastern nation. Part of Mr. Allen's article is taken up with a discussion of the way in which, after having once learned to make vessels of the dried Gourds themselves, men learned, first to strengthen them with a coating of baked clay and then to use the clay by itself while keeping the original shapes; and in showing how all the varieties of Gourd-like shapes we know may have sprung from direct imitation, since the Gourd naturally assumes many diverse forms and may be made to assume a still greater diversity by being constricted during its growth. But much space is also given to a description of the habits and manners of growth of the plants, and of the different ways by which cross-fertilization through insect agency is achieved in different species.

In the same number of the *Popular Science Monthly* Professor Byron D. Halsted writes of "Botany as it May be Taught" in a manner so sensible and suggestive that his article ought to attract the attention of all teachers and students in this branch of knowledge. Its value is vastly increased, of course, by the fact that he explains methods which are not merely theoretical, but which he has successfully put in practice with large classes of young men and women in the State Agricultural College of Iowa. A third article which may be noted in this magazine is Dr. Manly Miles's on "Lines of Progress in Agriculture," while among the minor contributions is an interesting one on "Flower Farming" for the production of essences in the south of France, and another on the manufacture of India-paper from the fibres of Hemp, Mulberry-bark and similar substances.

Notes.

The death is announced of Giuseppe Inzenga, a well known authority on Fungi, who was Professor at the University of Palermo.

Mr. David Allan, gardener to R. M. Pratt, Esq., Watertown, Mass., has a number of fine plants of the showy *Disa grandiflora* in full bloom.

A single plant of *Ampelopsis tricuspidata*, on Camden Street, Boston, covers completely the front of a three-story block of houses for a distance of one hundred and twenty-five feet.

From Newport are now coming Hydrangeas with blue flowers and Sweet Peas of the Butterfly variety with lilac edgings. These are now extensively used by florists of this city in choice designs.

In the absence of White Carnations, Asters are largely used by the Boston florists, during the summer months, in making up designs. One large grower averages, at the present time, three thousand Aster-blooms a day.

Mr. John N. May, the well-known Rose-grower of Summit, New Jersey, is not prepossessed in favor of the Rose, Mrs. John Laing, owing to the muddy color of its blooms after they have been cut twelve hours or so. Nevertheless, he is devoting his largest house to its cultivation, and will give it a fair trial.

A dozen plants of the new *Cypripedium bellatulum*, recently described in this journal, were exhibited by the Messrs. Low at a late London flower show. Every one of them bristled with flowers, tending to prove the floriferous quality claimed for the plant by its introdu

A statue is to be erected to the memory of the French botanist, Planchon, in the town of Ganges, not far from Montpellier, and in the centre of a Grape growing region, once devastated by the Phylloxera, to whose investigation and to the study of the Vine he largely devoted the last years of his useful life.

The Royal Horticultural Society of London will give no more certificates for new varieties of tuberous Begonias. The committee holds that something like perfection has been reached in this direction, and that hereafter not an individual variety, but the particular strain of varieties, should be commended.

The remarkable specimen of the new variety of *Cattleya Gigas*, described in another column, has been added to the rich collection of F. L. Ames, Esq. Although it had been in bloom quite three weeks when it was sent to North Easton, the flowers were in perfect condition when it arrived at its new home.

Six thousand bushels is the average annual crop of pears yielded by three of the larger orchards in Essex County, New Jersey. This year the crop will hardly reach two hundred bushels. The failure is attributed, by some fruit-growers, to unfavorable weather when the trees were in bloom, which prevented the proper fertilization of the ovule.

Some idea of the dependence of Great Britain upon French gardeners will be gained from the fact, published in the *Journal of Horticulture*, that during the year 1885 there were shipped to England from the little port of Roscoff, in Brittany, 11,107 tons of Potatoes; 4,060 tons of Onions; 4,000 tons of Cauliflowers; 1,800 tons of Artichokes.

Probably the largest specimen of *Todea barbara*, a Fern with a thick, woody stem, peculiar to Cape Colony, Australia and New Zealand, ever sent to Europe, has recently been received at the Jardin des Plantes in Paris. It weighs nearly 600 pounds, and the stem, from which spring sixty clusters of fronds, is four feet high, six feet long, and nearly four feet wide. It is said to be in good condition.

It is claimed that the first exhibition devoted exclusively to the Chrysanthemum was held at Toulouse, and that more than 6,400 flowering specimens of this popular plant were collected at the exhibition which took place in that city three years ago. An exhibition of these plants, under the auspices of the *Societé d'Horticulture de la Haute-Garonne*, will be held there this year from the 15th to the 18th of November.

In the Grass and Forage Garden at the Storr's School Agricultural Experiment Station, Connecticut, are growing seventy-five species and varieties of grasses, legumes and other fodder plants; besides this, a number of sods have been set out. The farmers of the State are invited to send samples of sod from old meadows and pastures, six inches square, with a view to test the different grasses from all parts of the State.

A letter to a daily paper appealing for contributions to the New York Flower Mission, the work of which was recently described in our columns, states that on a single day last month 11,425 bunches of flowers were distributed among the poor and sick. Another centre for the reception and distribution of flowers has been opened at Police Headquarters, 303 Mulberry Street. Wherever gifts may be sent it is desirable that they should be enclosed in old boxes or baskets which need not be returned. It is hardly necessary to add that fruits will be as welcome as flowers.

On the day of the late Emperior Frederick's funeral (June 18th), the hundredth anniversary of the birth of the botanist Karl Sigismund Kunth was celebrated in the Jerusalem Church-yard at Berlin by the Botanical Association of the Province of Brandenburg. Kunth's reputation rests upon his labors in describing the plants collected by Alexander von Humboldt and Aimé Bonpland, upon the examination of the Passalagua collection of vegetable remains from Egyptian tombs, and especially upon his classical "*Enumeratio Plantarum.*" Kunth was well known in his life-time as a student of garden plants and for many years was Professor and Vice-Director at the Botanical Garden in Berlin. His death occurred in the year 1850.

The Revue Horticole calls attention to the fact that the formal arrangement of plants has been abandoned in the flower-beds seen this year in the city of Paris. Such beds are now usually surrounded with a formal row of plants of one variety; the remainder, except in the case where the bed is divided into compartments by means of lines of color, being entirely filled with various combinations of flowering or foliage plants, grouped naturally and without formal arrangement. Some of the combinations of the plants, made by the Parisian gardeners, are far more attractive than the formal ribbon-border style of arrangement so universal in the United States and in England.

A correspondent of a San Francisco paper in Paarl, in Cape Colony, says, that the Colony annually exports about 50,000 cases of Everlasting Flowers, worth some twenty dollars a case, half of which go direct to New York and Boston. The flowers are gathered by the Kaffirs, chiefly in the Drakenstein Mountains, about fifty miles from Cape Town, and are brought to the country storekeepers, who dry them in long sheds, from the roof of which they are suspended in bunches in order that the warm wind may pass freely among them. The Kaffirs go out in families in the gathering season, and the women and children do most of the work, which is by no means easy, as they must follow unfrequented paths, and their half-naked bodies are sadly bruised by the stones and thorny bushes among which the plants are found. A certain amount of actual danger is also involved in the work, as life is often risked to obtain choice specimens growing on the verge of precipices.

A telegraph wire is the last thing one would expect to support vegetation of any kind; yet a traveler in Brazil writes to a German horticultural journal describing a crop of Mistletoe which he found clothing the wires not far from Rio Janeiro. At a distance, he says, the wires appeared fringed with what he supposed were the leavings of a recent flood. But a perception of their height soon removed this idea, and upon examination the fringe proved to be composed of thousands of little Mistletoes, firmly fixed to the wires from which they depended. Many species of this family flourish in Brazil, and some of them, called "Bird-weeds" by the people, thickly infest fruit-trees and other cultivated plants and bear large berries which are greedily devoured by birds. These seeds are deposited on the telegraph wires in the birds' droppings and quickly take root, and although the plants perish, naturally, before very long, they are succeeded by others, and the curious Mistletoe fringe is perpetuated.

A private letter from the chairman of the California Forestry Commission speaks encouragingly of the work already accomplished by the commission. Important additions to the forest map have been completed during the present season; the nurseries established a few months ago by the commission, under the charge of Mr. Thomas H. Douglas, already contain 300,000 young forest trees for distribution through the State, while lands valued at from $60,000 to $80,000 have been presented to the commissioners by private parties to enable them to inaugurate and carry on experiments in forest planting. Satisfactory progress has been made also in stopping the stealing of timber from Government and State lands, and the setting of forest fires, which have long threatened the very existence of the California mountain forests. The efforts of the commission have had, however, the result of forcing lumbermen and speculators to take up Government timber lands, and the sales of such lands during the last year are unprecedented in amount.

At a recent Saturday exhibition (July 28th) of the Massachusetts Horticultural Society, a collection of Achimenes shown by Mr. N. T. Kidder, of Milton, attracted much attention. Better grown, cleaner and better flowered plants have probably never been seen in this country. The collection contained specimens of Mauve Queen, with very large flowers of great substance, and the handsomest variety shown, although not so covered with flowers down to the base of the stems as some others, Carl Schurz, Grandiflora, Longiflora, Bronzoni, Dazzle, Admiration and Eclipse. Achimenes, although they are less commonly seen here than they were a few years ago, are excellent plants for the summer decoration of green-houses and conservatories. To the same exhibition a splendid plant of *Sobralia macrantha*, one of the noblest of terrestrial Orchids, was sent from the garden of Mr. John L. Gardner. It was more than seven feet high, with a dozen and a half of its lovely, great, purple, aromatic flowers expanded. This is one of the few Orchids which combines stately habit, handsome and abundant foliage, and showy flowers.